



SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

IMR TEST LABS – SINGAPORE PTE. LTD.
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MECHANICAL

Valid To: December 31, 2023

Certificate Number: 1140.10

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests on metals, metal products, and welds:

<u>Test</u>	<u>Test Method(s)</u>
Adhesive or Cohesive Strength of Thermal Spray Coatings	ASTM C633
Creep, Creep Rupture	ASTM E139
Stress Rupture	ASTM E139, E292
Ductility (3-Points Bend Test)	ASTM E290; CAAS SAR (Chapter 6.5, Appendix 1)
Hydrogen Embrittlement Test (Specimen Type 1a)	ASTM F519
Tensile	
Room Temperature Tensile (Up to 300KN) Tensile Strength, Yield Strength, Elongation, Reduction in Area	ASTM A370, B557, E8/E8M; CAAS SAR (Chapter 6.5, Appendix 1)
Elevated Temperature Tensile (Up to 850°C) Tensile Strength, Yield Strength, Elongation, Reduction in Area	ASTM E21
Weld Testing (Metallographic & Visual Check)	AWS D17.1/ D17.1M
Hardness	
Rockwell Hardness (HRB, HRC, HR15N, HR15Y)	ASTM A370, E18
Microhardness - Vickers (100, 300, 500, 1000 gf)	ASTM E384

<u>Test</u>	<u>Test Method(s)</u>
Metallographic Evaluation	
Preparation of Specimens	ASTM E3
Alpha Case	PWA E142
Carburization/Case Depth (Microscope and Microhardness)	SAE J423
Decarburization (Microscope and Microhardness)	ASTM E1077
Grain Size	ASTM E112
Inclusion Content	ASTM E45 (Method A)
Macroetching	ASTM E340, E381
Microetching	ASTM E407; CAAS SAR (Chapter 6.5, Appendix 1)
Thickness Measurement at Cross Section	ASTM B487
<u>Chemical Testing</u>	
Combustion/Fusion (C, H, N, O, S) Hydrogen in Steel	ASTM E1019, E1409, E1447 ASTM E1019, E1941; CSP-032
Inductively Coupled Plasma (ICP) (Ag, Al, As, B, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Hf, K, La, Li, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Re, Sb, Se, Si, Sn, Ta, Te, Ti, V, W, Y, Zn, Zr)	CSP-017
Optical Emission Spectroscopy (OES)	
Aluminum Based (As, B, Be, Bi, Ca, Co, Cr, Cu, Fe, Ga, Li, Mg, Mn, Na, Ni, P, Pb, Sb, Si, Sn, Sr, Ti, V, Zn, Zr)	ASTM E1251
Iron Based (Al, As, B, C, Ca, Co, Cr, Cu, Mn, Mo, Nb, Ni, P, S, Sn, Si, Ti, V, Zr)	ASTM A751, E415, E1086
Nickel Based (Al, B, C, Co, Cr, Cu, Fe, Mn, Mo, Nb, Ni, P, S, Si, Sn, Ta, Ti, V, W, Zr)	CSP-045
SEM-EDS Analysis	FSP-052



Accredited Laboratory

A2LA has accredited

IMR TEST LABS-SINGAPORE PTE. LTD.

Singapore

for technical competence in the field of

Mechanical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 20th day of December 2021.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 1140.10
Valid to December 31, 2023

For the tests to which this accreditation applies, please refer to the laboratory's Mechanical Scope of Accreditation.